

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/042,154

Atty Docket No.: Q62628

REMARKS

The Office Action of April 1, 2003 has been received and its contents carefully considered.

Claims 1 to 20 are all the claims pending in the application.

The Examiner makes of record the telephone restriction requirement and applicants' election of the invention of Group I, claims 1-12. The Examiner states that applicants must affirm this election when responding to the Office Action. Applicants hereby affirm this election.

The Examiner acknowledges applicants' claim for foreign priority based on applicants' Japanese Application 2000-204163, filed in Japan on July 5, 2000. The Examiner states that applicants have not filed a certified copy of the Japanese application. In response, applicants point out that the present application is a continuation-in-part of a PCT application, and the certified copy of the Japanese priority application has already been filed with WIPO. Accordingly, applicants believe that a certified copy does not have to be filed in the U. S. Patent and Trademark Office.

In Paragraph 8 of the Office Action, the Examiner acknowledges applicants' claim for domestic priority. The Examiner, however, did not check the box acknowledging the claim for domestic priority in the "Office Action Summary". Applicants request the Examiner to do so.

The Examiner objects to the specification for a number of reasons. Applicants discuss each of these reasons below.

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(a) The Examiner states that it is unclear where the component that is identified by the reference numeral "2" of the drawings is described in the specification.

In response, applicants have amended the specification at page 8, line 18 to insert the reference numeral "2" after the word "solution".

(b) The Examiner states that it is unclear where the specification describes the component that is identified by the reference numeral "8" of the drawings. The Examiner further states that at page 8, line 24, it appears that the term "commutation plate 3" should be -- commutation plate 8--.

In response, applicants have amended the specification at page 8, line 24 to indicate that the commutation plate is identified by the reference numeral "8" and not by the reference numeral "3".

In view of the above, applicants request withdrawal of these objections.

Claims 1-12 have been rejected under the second paragraph of 35 U.S.C. § 112 as indefinite.

The Examiner sets forth a number of reasons for this rejection. Applicants discuss each reason below.

(a) The Examiner states that claim 1 is indefinite because it is unclear whether the composition, sol product and/or the alumina are derived from an aluminum salt.

In response, applicants submit that claim 1 clearly indicated that it is the sol product that is obtained from an aluminum salt. Although applicants believe claim 1 is not indefinite, and

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believe that one of ordinary skill in the art would readily understand the meaning of claim 1, applicants have amended claim 1 to insert the reference characters (a), (b) and (c) before water, alumina crystal and a sol product, respectively.

(b) In addition, the Examiner states that it is unclear how each of the respective possibilities are "derived".

With respect to the Examiner's statement that it is unclear how each of the respective possibilities are "derived", applicants have amended claim 1 to delete the term "derived from an aluminum salt" and to define the sol product as set forth in original claim 4 (or 5) or 6 (or 7).

In view of the above, applicants submit that the claims comply with the requirements of the second paragraph of 35 U.S.C. § 112 and, accordingly, request withdrawal of this rejection.

Claims 1-12 have been rejected under 35 U.S.C. § 102(b) as anticipated by White et al.

Applicants submit that White et al do not disclose or render obvious the subject matter of claim 1 as amended above and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 as amended above is directed to a polishing composition comprising at least (a) water, (b) alumina crystal and (c) a sol product.

The sol product (c) is (i) a mixture of an aluminum salt with at least one species selected from the group consisting of sodium hydroxide, potassium hydroxide, ammonia, organic amine compounds, amine chelate compounds, aminocarboxylic acids, aminocarboxylic acid chelate compounds and aminophosphonic acid chelate compounds, or the sol product (c) is (ii) a mixture of at least one species selected from among hydrates and anhydrides of aluminum salts including

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inorganic acid aluminum salts that include aluminum sulfate, aluminum chloride, aluminum nitrate, aluminum phosphate and aluminum borate, and organic acid aluminum salts that include aluminum acetate, aluminum lactate and aluminum stearate with at least one species selected from among sodium hydroxide, potassium hydroxide, ammonia, organic amine compounds, amine chelate compounds, aminocarboxylic acids, aminocarboxylic acid chelate compounds and amino-phosphonic acid chelate compounds.

Thus, applicants have amended claim 1 to recite the sol products of claims 4 and 6, and to state that the alumina is alumina crystal. Support for alumina crystal can be found at page 6, paragraph [0029] of the specification.

The White et al patent discloses an alumina sol that is made by partially neutralizing an aqueous solution of a water soluble aluminum salt, such as aluminum chloride or aluminum nitrate, with an alkaline substance, such as ammonia, in the presence of gelatin.

The Examiner states that in the White et al Examples, the aluminum salts are partially neutralized and, therefore, there exists an equilibrium of the various species in the sol product, including at least alumina, aluminum chloride with some degree of hydrolysis, and ammonia and chloride in ion form.

The Examiner asserts that the claims of the White et al patent disclose alumina at a concentration of 1 to 10% by weight, and an ammonium salt at a concentration of 5-38% by weight.

The Examiner states that the partial hydrolysis and concentrations read on the claimed concentrations of claims 1 to 12.

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In response, applicants point out that claim 1 as amended above is directed to a polishing composition that contains a sol product that is a mixture (i) or mixture (ii), and, in addition, contains at least water and alumina crystal. The alumina sol product in White et al contains water and alumina. The Examiner appears to be interpreting the disclosure of White et al of an alumina sol as satisfying the recitations of claim 1 of water, alumina and a sol product. The alumina crystal in claim 1, however, is a component that is separate and different from an alumina that results from the sol product.

Applicants note that at the top of page 6 of the Office Action, the Examiner refers to column 5, lines 28 plus, of a patent to "Peterson", as disclosing a variety of uses for the sol products. The Examiner states that the function of the Peterson composition as a polishing agent is inherent to the disclosure of the Peterson compositions due to their colloidal particulate nature.

It appears to applicants that the Examiner has mistakenly referred to the Peterson patent, and instead, intended to refer to the White et al patent. The White et al patent at column 5, lines 28 plus, does, in fact, disclose a number of different uses for the sol that is described in the White et al patent. Applicants do not consider the Peterson patent to be part of this rejection and ask the Examiner to confirm this point.

In view of the above, applicants submit that White et al do defeat the patentability of the subject matter of claim 1 as amended above and, accordingly, request withdrawal of this rejection.

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Claims 1, 2 and 10-12 have been rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over WO 99/35089 to Nissan (WO '089).

Applicants note that claims 4 and 6 were not included in this rejection. As discussed above, the recitations of claims 4 and 6 have been incorporated into claim 1. Accordingly, applicants submit that claim 1 as amended above is patentable over WO '089 and, therefore, request withdrawal of this rejection.

Claims 1-7 and 10-12 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,366,542 to Yamada et al.

Applicants submit that Yamada et al do not disclose or render obvious the subject matter of claim 1 as amended above and, accordingly, request withdrawal of this rejection.

The Examiner argues that Example 2 and the claims of Yamada et al disclose polishing compositions comprising alumina dispersed in water, in combination with aluminum salts and aminocarboxylic acid salts as chelating agents and polishing accelerators.

The patent to Yamada et al discloses a polishing composition that comprises water, alumina, a chelating agent, an aluminum salt and/or boehmite. The aluminum salt can be aluminum sulfate, aluminum chloride or aluminum nitrate. The chelating agent can be a polyamine, such as ethylenediamine or diethylenetriamine.

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The Yamada et al composition can also include acids such as sulfuric acid, hydrochloric acid, nitric acid, and acetic acid, and inorganic salts such as ammonium sulfate, ammonium chloride, ammonium acetate and magnesium nitrate.

The Yamada et al patent does not contain any specific disclosure of a polishing composition that contains a sol product obtained from an aluminum salt. Yamada et al do not contain any disclosure that specifically refers to a sol product.

In Example 1, Yamada et al disclose a "slurry" containing α -alumina and boehmite. While boehmite can be a material for alumina sol, the boehmite used in Example 1 by Yamada et al has a large average particle size of 20 μm and therefore cannot be called a sol. The boehmite used by Yamada et al is not limited to a gel, and there is no description therein concerning the limitation of boehmite to a sol product. Insofar as the boehmite is not limited to a sol product, the effects peculiar to the present invention that the polishing rate is high, that roll-off is suppressed from being formed and that there is no surface defect cannot be obtained.

The Examiner argues that Example 2 of Yamada et al discloses a slurry obtained by "dispersing" alumina having a particle size of about 1.5 microns in water. The Examiner argues that this dispersion reads on alumina sols, which are defined as colloidal solutions. Example 2 of Yamada et al, however, is not described by Yamada et al as a sol product, but is described as a slurry, just as Example 1 of Yamada et al is described as a slurry.

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In view of the above, applicants submit that Yamada et al do defeat the patentability of the subject matter of claim 1 as amended above and, accordingly, request withdrawal of this rejection.

Claims 3-9 have been rejected under 35 U.S.C. § 103(a) as obvious over WO '089 and further in view of Peterson.

The Examiner asserts that WO '089 discloses the recitations of claims 3 to 9, except that WO '089 does not disclose the various species of the alumina sol products that are set forth in claims 3-9. The Examiner relies on Peterson to disclose these features.

Applicants note that the Examiner refers to column 7, lines 23-39 of Peterson as disclosing dispersion aids, including ammonium hydroxide, aluminum chlorides or basic aluminum nitrates. The Examiner appears to have made a mistake when he refers to column 7, because such a disclosure does not appear at column 7 of Peterson. Instead, such a disclosure appears at column 17, lines 23-39 of Peterson.

Peterson discloses a coated abrasive article that contains abrasive grains that can be made from alumina hydrate-based sol compositions, alumina particle-based dispersions and aluminum salt solutions, as disclosed at column 14, line 63 to column 15, line 2. Peterson describes in detail the alumina hydrate-based sol compositions (column 15, lines 6 to 60), the alumina particle-based dispersions (column 15, lines 61 to column 17, line 67) and the aluminum salt solutions (column 18). Peterson discloses at column 15 that a peptizing agent, such as acetic, hydrochloric, formic and nitric acid can be added to produce a more stable hydrosol. Peterson

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further discloses at column 17, lines 23 to 39, that the alumina particle dispersions compositions can include dispersion aids and describes a number of them at column 17, lines 23-39, including strong acids such as nitric acid, strong bases such as ammonium hydroxide, and basic aluminum salts such as aluminum chloride. Peterson does not disclose sol product mixtures (i) and (ii) of the present claims, and therefore does not supply the deficiencies of WO '089.

Further, applicants submit that one of ordinary skill in the art would not have had any motive or reason to combine the teachings of WO '089 which relate to an alumina powder and a polishing composition containing the powder with the teachings of Peterson which relate to a coated abrasive article and methods for making the coating abrasive article. Accordingly, applicants request withdrawal of this rejection.

Claims 8 and 9 have been rejected under 35 U.S.C. § 103(a) as obvious over Yamada et al and further in view of Peterson.

Applicants note that in setting forth this rejection, the Examiner refers to "Nissan". It appears to applicants that this is a mistake and he intended to refer to Yamada et al.

In addition, in the same manner as discussed above, the Examiner refers to column 7, lines 23-39 of Peterson, but this appears to be a mistake and that the Examiner intended to refer to column 17, lines 23-39 of Peterson.

The Examiner argues that it would have been obvious to employ the dispersion aids of Peterson in the Yamada et al sol products.

As discussed above, Yamada et al do not disclose sol products.

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Further, as discussed above, Peterson do not disclose the sol product mixtures (i) and (ii) of the present claims, or the mixtures of claims 8 and 9.

In addition, applicants submit that one of ordinary skill in the art would not have any motive or reason to combine the teachings of Yamada et al relating to polishing compositions with those of Peterson relating to a coated abrasive article and methods for making the coated abrasive article, and that even if the teachings were combined, one of ordinary skill would not have been led to the present invention.

In view of the above, applicants request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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